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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,062	12/30/2003	Michael McSwiney	42P17283	9082
8791 7590 11/01/2007 BLAKELY SOKOLOFF TAYLOR & ZAFMAN 1279 OAKMEAD PARKWAY SUNNYVALE, CA 94085-4040			EXAMINER TUROCY, DAVID P	
			ART UNIT 1792	PAPER NUMBER
			MAIL DATE 11/01/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/750,062	Applicant(s) MCSWINEY ET AL.	
	Examiner David Turocy	Art Unit 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 4,5,7-9,11 and 13-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,6,10 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1792

DETAILED ACTION
Election/Restrictions

1. Applicant's election of claims 1-3,6, 10, and 12 in the reply filed on 9/7/07 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1 and 6 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims of U.S. Patent No.

7125582. Although the conflicting claims are not identical, they are not

Art Unit: 1792

patentably distinct from each other because the patented claims are directed to silicon nitride deposition of a halogen substituted silicon hydride and a substituted hydrazine (dimethyl hydrazine at column 2, lines 30-35) below 550°C, which subject matter is fully encompassed by the claims of the present application.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 2, 3, and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 59215732 by Yamazaki.

Yamazaki discloses a method of supplying dibromosilane and hydrazine to a chamber, applying thermal energy to the gases, setting an operating temperature of less than 550°C and depositing a silicon nitride by reacting the dibromosilane and hydrazine (English abstract). Yamazaki discloses supplying the gases concurrently, which would result in a degree of mixing within a second chamber coupled to the first chamber (Figures).

Art Unit: 1792

6. Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5968611 by Kaloyeros et al.

Kaloyeros discloses a method of supplying halogen substituted hydrated silane and hydrazine to a chamber, applying thermal energy to the gases, setting an operating temperature of less than 550°C and depositing a silicon nitride by reacting the halogen substituted hydrated silane and hydrazine (abstract, column 4; column 1, lines 5-15).

7. Claims 1, 2, and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent Publication 20050025885 by McSwiney et al.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

McSwiney discloses a method of supplying halogen substituted hydrated silane and dimethyl hydrazine to a chamber, applying thermal energy to the gases, setting an operating temperature of less than 550°C and depositing a silicon nitride by reacting the halogen substituted hydrated silane and dimethyl hydrazine (0017-0018, 0044, 0050). McSwiney discloses supplying the gases

Art Unit: 1792

concurrently, which would result in a degree of mixing within a second chamber (the upper part of the 110) coupled to the first chamber (the lower part of 110) (Figures).

8. Claims 1 and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent Publication 20050042888 by Roeder et al.

Roeder discloses a method of supplying halogen substituted hydrated silane and dialkyl hydrazine to a chamber, applying thermal energy to the gases, setting an operating temperature of less than 550°C and depositing a silicon nitride by reacting the halogen substituted hydrated silane and dialkyl hydrazine (0009, 0017, 0084, 0086, 0097, 0090).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kaloyeros et al. in view of US Patent 6780476 by Horikawa.

Kaloyeros discloses all that is taught above and discloses using CVD to deposit the silicon nitride film as well as direct liquid injection (column 8), however, the reference fails to disclose mixing the precursors into a organic

Art Unit: 1792

solvent. However, Horikawa discloses a known method of improving CVD deposition by mixing the precursors into an organic solvent (figure 4), results in reduction of dust and adhesion of deposits to the supply conduit (Column 4, lines 20-25). Therefore, it would have been obvious to one of ordinary skill in the art to have mixed the precursors in Kaloyeros in an organic solvent as taught by Horikawa to reap the benefits of reducing dust and adhesion of deposits on the supply conduit. Additionally, Horikawa discloses that CVD can be improved by using an organic solvent mixed with the precursors Rationale: The claim would have been obvious because the technique for improving a particular class of devices, methods or products was part of the ordinary capabilities of a person of ordinary skill in the art, in view of the teaching of the technique for improvement in other situations. See *KSR Int'l Inc. v. Teleflex Inc.*, 127 S Ct. 1727, 1741, 82 USPQ2d.

11. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kaloyeros et al. in view Horikawa and further in view of US Patent 6767582 by Elers et al.

Kaloyeros in view of Horikawa disclose all that is taught above, and Kaloyeros discloses nitrogen precursor of nitrogen, ammonia, or hydrazine, however, fails to disclose dimethyl hydrazine. However, Elers discloses a deposition of a nitride film using nitrogen precursors of ammonia, hydrazine, or dimethyl hydrazine. Therefore, Elers discloses dimethyl hydrazine is a known substitute for ammonia or hydrazine as the nitrogen precursor in a CVD reaction.

Art Unit: 1792

The claim would have been obvious because the substitution of one known element for another would have yielded predictable results to one of ordinary skill in the art at the time of the invention. See *KSR Int'l Inc. v. Teleflex Inc.*, 127 S Ct. 1727, 1741, 82 USPQ2d.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Turocy whose telephone number is (571) 272-2940. The examiner can normally be reached on Monday-Friday 8:30-6:00, No 2nd Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Art Unit: 1792

/David Turocy/
Division 1792
Patent Examiner


FRED J. PARKER
PRIMARY EXAMINER